REMARKS

This Paper is submitted in response to the Office Action mailed September 26, 2005. This Paper is filed within the three-month shortened statutory response period, on or before December 26, 2005. The Commissioner is hereby authorized to charge any additional fees to Deposit Account number 02-1818.

In the Office Action, Claims 1 to 35 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Applicants respectfully submit that the term "high-viscous" as recited in Claim 1 is a term of art understood by one of skill in the art as referring to a type of moulding material. The term "high-viscous" is based on the viscous behavior of the moulding material including the filler materials contained therein which results in the increased melt strength and in the extrusion blow moulding capability of the moulding material. The term is not used for a separate quantitative characterization, but rather as an indication of the general quality of the moulding material. Although use of the term "high-viscous" would reasonably apprise one of skill in the art of the scope of the invention, contrary to what is suggested in the Office Action, the term is further defined in Claim 1 by the features of the increased melt strength and of the extrusion blow moulding capability. Accordingly, the rejection should be withdrawn.

In addition, the term "typical mineral filler materials" in Claims 1, 23, 25, 26 and 28 has been amended to "typical mineral filler materials other than nano-scale fillers". Claim 1, for example, now recites, in part, "wherein the moulding material has a melt strength of about at least 30% higher than that of a similar moulding material comprising, instead of the nano-scale fillers (a), typical mineral filler materials other than nano-scale fillers." Therefore, this amendment also renders the phrase "30% higher than..." clear. Accordingly, the rejection has been overcome and should be withdrawn. Further amendments to Claims 23, 25, 26 and 28 have been made to clarify the language of the claims and are not made for reasons of patentability.

In the Office Action, Claims 1 to 35 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,359,052 B1 to Trexler et al. ("*Trexler*"); Claims 1 to 35 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,548,587 B1 to Bagrodia et al. ("the '587 patent"); and Claims 1 to 35 are rejected under 35 U.S.C. §103(a) as

being unpatentable over U.S. Patent No. 6,337,046 to Bagrodia et al. ("the '046 patent"), collectively referred to herein as, "the cited references".

The cited references relied upon in the Office Action fail to teach or suggest a high-viscous moulding material suitable for an extrusion blow moulding process including fibrous filling agents in amounts of from 5 to 30 wt.-% per 100 parts by weight of the polymer matrix and impact modifiers in amounts of from 3 to 12 wt.-% per 100 parts by weight of the polymer matrix as recited in the claimed invention. As acknowledged by the Patent Office, each of the cited references fails to disclose the amount of the impact modifiers and fibrous filling agents. Office Action, pages 2-4. In fact, the Office Action goes on to state that "these additives are broadly disclosed". Indeed, there is absolutely no guidance in the cited references for one of skill in the art to choose the amounts of fillers to achieve the unexpectedly improved melt strength. Further additives are not even required in the cited references and are only optionally added if desired. Therefore, Applicants respectfully submit that an ordinary skilled artisan would not have been motivated by the cited references to choose the amounts of the fibrous filling agents and the impact modifiers.

Furthermore, the cited references do not teach or suggest improving melt strength of a high-viscous moulding material by including fibrous filling agents and impact modifiers in a polymer matrix having nano-scale fillers as in the claimed invention. Therefore, the skilled artisan would not consider the use of fibrous filling agents and impact modifiers to affect the melt strength of the high-viscous moulding material. Nor would the skilled artisan have been motivated by the cited references to consider further selecting additives not known to affect melt strength to combine with nano-fillers to provide a synergistic effect on melt strength as in the claimed invention.

Not only do the cited references fail to associate the addition of impact modifiers and fibrous filling agents with enhancing melt strength, but the cited references fail to teach or suggest improving melt strength of a high-viscous moulding material by including fibrous filling agents and impact modifiers in particular amounts. Therefore, the skilled artisan would not have been motivated by the cited references to identify the optimal, coordinated ranges of amount of additives to combine with nano-fillers to provide a synergistic effect on melt strength as in the claimed invention. Therefore, the effect of fibrous filling agents and impact modifiers along

with their claimed ranges on the extrusion blow moulding capability and melt strength was unpredictable and, thus, the skilled artisan would not would not have been motivated by the cited references to choose the amounts of the fibrous filling agents and the impact modifiers.

The claimed invention demonstrates unobvious and unexpected advantageous properties over the materials disclosed in the cited references. In contrast to the cited references, Applicants have unexpectedly found that adding fibrous filling agents and impact modifiers in the claimed ranges to a high-viscous moulding material having nano-scale fillers increases the melt strength of the moulding material by at least about 30% higher than a similar moulding material without the nano-scale fillers. Accordingly, providing fibrous filling agents and impact modifiers in combination with nano-fillers results is an unobvious and unexpected synergistic effect on the melt strength.

In addition, the Specification provides evidence of unobvious or unexpected advantageous properties superior to the properties of the materials disclosed in the cited references. It is well established in patent law that evidence of unobvious or unexpected advantageous properties, such as superiority in a property can rebut a *prima facie* case of obviousness. *In re Chupp*, 816 F.2d 643, 646, 2 USPQ2d 1437, 1439 (Fed. Cir. 1987). Even if the Office Action has set forth a *prima facie* case of obviousness, Applicants respectfully submit that the Specification provides evidence indicating that including the fibrous fillers and impact modifiers in the claimed composition within the claimed ranges is critical to the improved melt strength and is not a result of routine experimentation. *See, for example, In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). As stated in the Specification at, for example, page 11, lines 11-18, impact modifiers are added to the thermoplastic polymers in amounts of 3 to 12 wt.-% per 100 parts by weight of the polymer matrix. Fibrous filling agents are added as further fillers in amounts of from 5 to 30 wt.-% per 100 parts by weight of the polymer matrix. The Specification further provides examples at page 18 in which the impact modifier, ethylene propylene copolymer, and the fibrous filling agent, E-glass, are combined with nano-fillers and a thermoplastic polymer, PA6, PA66 or PA12 in an amount within each of the claimed ranges. As illustrated in Tables 1 and 2 and as described on page 19, lines 16-24 of the Specification, the melt strength of non-reinforced polymerides is improved by adding the impact modifier and fibers within the claimed ranges. For example, the mold strengths of reinforced polyamide

samples 4 and 5 which include the impact modifiers and fibrous filling agents are 42 seconds and 50 seconds, respectively. In contrast, the non-reinforced Sample 2 without the impact modifiers and fibrous filling agents has a mold strength of only 15 seconds. Therefore, the claimed invention demonstrates unobvious and unexpected advantageous properties over the materials disclosed in the cited references.

In addition, the cited references are primarily directed to making a moulding material suitable for stretch blow moulding requiring a much lower melt strength than is required for extrusion blow moulding. In contrast to the claimed invention, the materials disclosed in the cited references do not require high melt strength. Therefore, one skilled in the art would not have been motivated by the cited references to add fibrous filling agents and impact modifiers in the amount of the claimed ranges to a high-viscous moulding material suitable for an extrusion blow moulding process having nano-scale fillers to increase the melt strength of the moulding material as in the claimed invention.

Accordingly, for at least the reasons discussed above, Applicants respectfully submit that one of ordinary skill in the art would not have been motivated by the cited references or knowledge in the art to modify the references to arrive at the claimed invention. Thus, the rejections should be withdrawn.

For the foregoing reasons, Applicants respectfully submit that the application is in condition for allowance and earnestly solicit reconsideration of same.

Respectfully submitted,
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